

C L A I M S

1. A device for the continuous filling and closing of cardboard/plastic composite packages which are open on one side, in particular beverage packages, with a filling zone for filling the open packages (P), and a closing zone for closing the open package end, wherein the individual zones are rotating functional wheels with recesses (12) arranged on the outside, including a filling wheel (3) and a closing wheel (4), wherein the individual packages (P) are arranged in cell cages (8) which are successively transferred to the individual wheels (3, 4), wherein the cell cages (8) are held in the recesses (12) of the wheels (3, 4) in a non-positive manner by means of magnets (19),

characterised in that for transferring the cell cages (8), transfer wheels (6, 6') with recesses (12') arranged on the outside are provided between the individual wheels (3, 4,) and in that the transfer wheels (6, 6') comprise means for rotating the cell cages (8) in their recesses (12').

2. The device according to claim 1, characterised in that filling takes place in an aseptic way; in that for the purpose of sterilising the packages (P), a sterilising wheel (2) is provided upstream of the filling wheel (3), and in that the entire transport

zone from the sterilising wheel (2) to the filling wheel (3) to and including the closing wheel (4) is a closed sterile channel (7).

3. The device according to claim 2, characterised in that upstream of the sterilising wheel (2), a prefolding wheel (1) for prefolding the still open end of the package is provided.
4. The device according to any one of claims 1 to 3, characterised in that downstream of the closing wheel (4), a package form wheel (5) to form a cuboid package and to fold back the still protruding ears of the package is provided.
5. The device according to any one of claims 1 to 4, characterised in that as a means for rotating the cell cages in their recesses (12'), for each recess (12') a rotatably held control element (25) is provided which by way of a drive is rotated such that the cell cage (8) adjoins the magnets (19) of the functional wheels (1, 2, 3, 4, 5) (inward transfer) or is detached from them (outward transfer) without any jerking or jolting.
6. The device according to claim 5, characterised in that the control element (25) comprises a form which interacts in a positive-locking manner with the cell cage (8).

7. The device according to claim 5 or 6, characterised in that the control system is a cam control with a fixed control slide (27) for guiding a sliding block (28) arranged on the control element (25).
8. The device according to any one of claims 1 to 7, characterised in that guide rails (24) for constrained guidance of the cell cages (8) are arranged in the region of the transfer wheels (6, 6'), at a distance from these transfer wheels (6, 6').
9. The device according to any one of claims 1 to 8, characterised in that all wheels (1, 2, 3, 4, 5) including the transfer wheels (6, 6') are arranged in one plane, and in that the empty packages (P) are fed from above into the cell cages (8), and the full and closed packages (P') are removed upward from the cell cages (8).
10. The device according to claim 9, characterised in that inserting and removing the packages (P) into/from the cell cages (8) takes place along a helical path.
11. The device according to any one of claims 1 to 10, characterised in that the number of cell cages (8) used is finite, and corresponds to the number of the maximum occupiable accommodation stations of all wheels (1, 2, 3, 4, 5) and transfer wheels (6, 6').

12. A cell cage for the transport of cardboard/plastic composite packages open on one side, in particular beverage packages, for use with the device according to any one of claims 1 to 11,  
characterised by  
an open-top cell body (15) for accommodating a package (P) to be filled, and at least one collar (16, 17), connected to the cell body (15), which collar comprises at least one upward or downward protruding driver element (21).
13. The cell cage according to claim 12,  
characterised in that  
the cell cage (8) comprises an upper collar (16) and a lower collar (17).
14. The cell cage according to claim 12 or 13,  
characterised in that  
each collar (16, 17) comprises at least one bearing pin (18).
15. The cell cage according to claim 14,  
characterised in that  
each bearing pin (18) is made from a ferromagnetic material.
16. The cell cage according to one of claims 12 to 13,  
characterised in that  
each cell body (15) comprises four wall plates (15A, 15B, 15C, 15D) and a cell floor (20).

17. The cell cage according to claim 16,  
characterised in that  
the cell floor (20) is designed so as to be height-  
adjustable within the cell body (15).
  
18. The cell cage according to any one of claims 11 to  
17,  
characterised in that  
the driver element (21) at the same time serves as an  
index pin to determine the orientation of the cell  
cage (8).